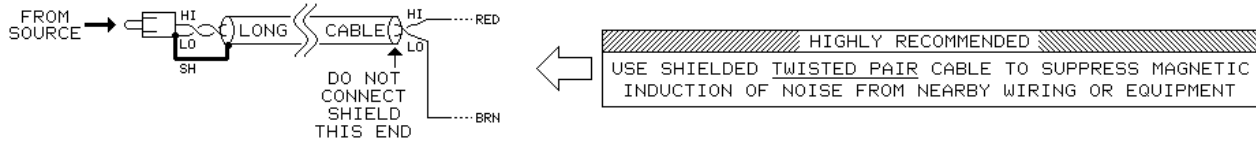
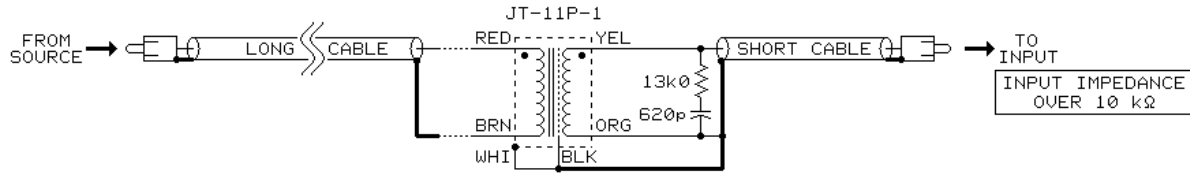


# JT-11P-1 UNBALANCED AUTOMOTIVE or CONSUMER APPLICATION



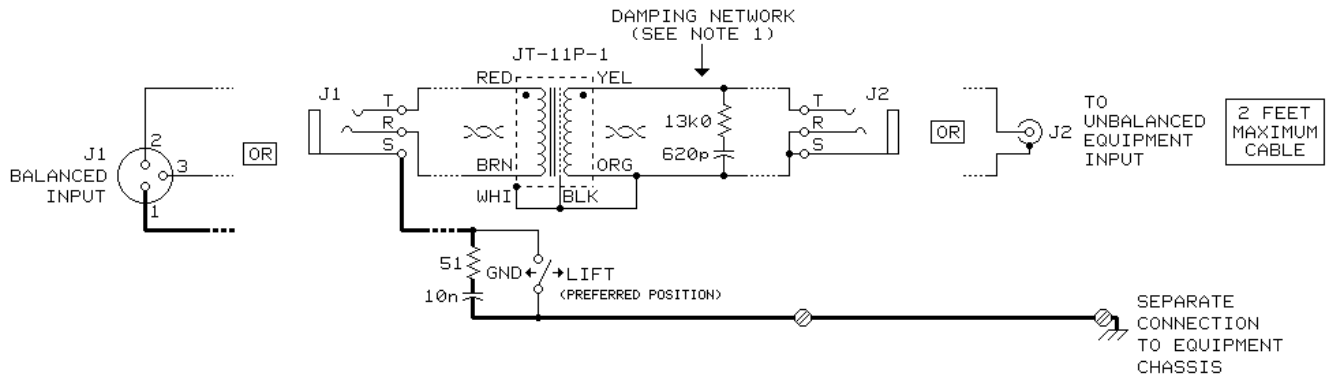
## NOTES

1. CASE OF TRANSFORMER MUST BE INSULATED FROM FRAME OF VEHICLE OR ANY OTHER GROUND FOR BEST NOISE REJECTION.
2. THE TRANSFORMER MUST BE LOCATED NEAR THE DEVICE INPUT! IF THE TOTAL DISTANCE IS OVER 4 FEET, THE LONGER CABLE MUST BE BETWEEN SIGNAL SOURCE AND TRANSFORMER. WE RECOMMEND NO MORE THAN 2 FEET OF CABLE BETWEEN THE TRANSFORMER AND THE DESTINATION DEVICE INPUT.
3. A PAIR OF JT-11P-1 TRANSFORMERS ASSEMBLED AS ABOVE IN A STURDY STEEL BOX WITH GOLD PLATED IHF/RCA INPUT AND OUTPUT JACKS IS AVAILABLE FROM JENSEN AS ISO-MAX® MODEL CI-2RR.

<b>jensen</b>	AS001
	09/13/95
7135 HAYVENHURST AVE. VAN NUYS, CALIFORNIA 91406 (818) 374-5857	

# JT-11P-1 CONVERSION OF UNBALANCED INPUT TO BALANCED

IF +4 dBu TO -10 dBu REFERENCE LEVEL CONVERSION IS REQUIRED, SEE AS012.



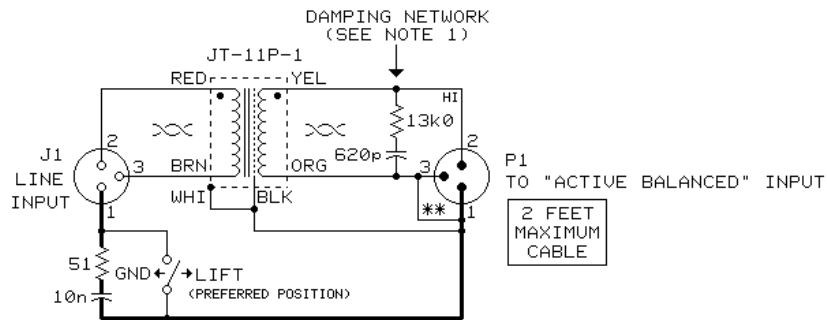
## NOTES:

1. THE DAMPING NETWORK SHOWN IS NECESSARY IF THE IMPEDANCE OF THE UNBALANCED INPUT IS OVER 10 kΩ, WHICH IS TYPICAL. OMIT NETWORK ONLY IF INPUT IMPEDANCE IS EXACTLY 10 kΩ.
2. FOR BEST TRANSIENT RESPONSE, KEEP SECONDARY LOAD CAPACITANCE UNDER 100 pF. (THIS IS ABOUT 2 FEET OF TYPICAL SHIELDED CABLE)
3. THE "WHI" LEAD IS ELECTRICALLY TIED TO THE CASE OF THE JT-11P-1 AND A "GROUND LOOP" MAY BE CREATED IF THE MOUNTING IS NOT INSULATED FROM THE CHASSIS.
4. PRIMARY (RED/BRN) AND SECONDARY (YEL/ORG) LEADS SHOULD BE TWISTED AS SHOWN AND WIRING SHOWN AS THICK LINE SHOULD BE HEAVY GAUGE AND AS SHORT AND DIRECT AS POSSIBLE.
5. A PAIR OF JT-11P-1 TRANSFORMERS ASSEMBLED AS ABOVE IN A STURDY STEEL BOX WITH HIGH QUALITY CONNECTORS AND GROUND LIFT SWITCHES IS AVAILABLE FROM JENSEN AS ISO-MAX® MODEL PI-2\*\* WHICH HAS SEVERAL INPUT AND OUTPUT CONNECTOR OPTIONS.

<b>jensen</b>	AS002
	09/13/95
7135 HAYVENHURST AVE. VAN NUYS, CALIFORNIA 91406 (818) 374-5957	

# JT-11P-1 UPGRADE OF "ACTIVE BALANCED" INPUT TO TRANSFORMER BALANCED

IMPROVES CMRR WHEN DRIVEN BY "REAL-WORLD" BALANCED OR EVEN UNBALANCED SOURCES

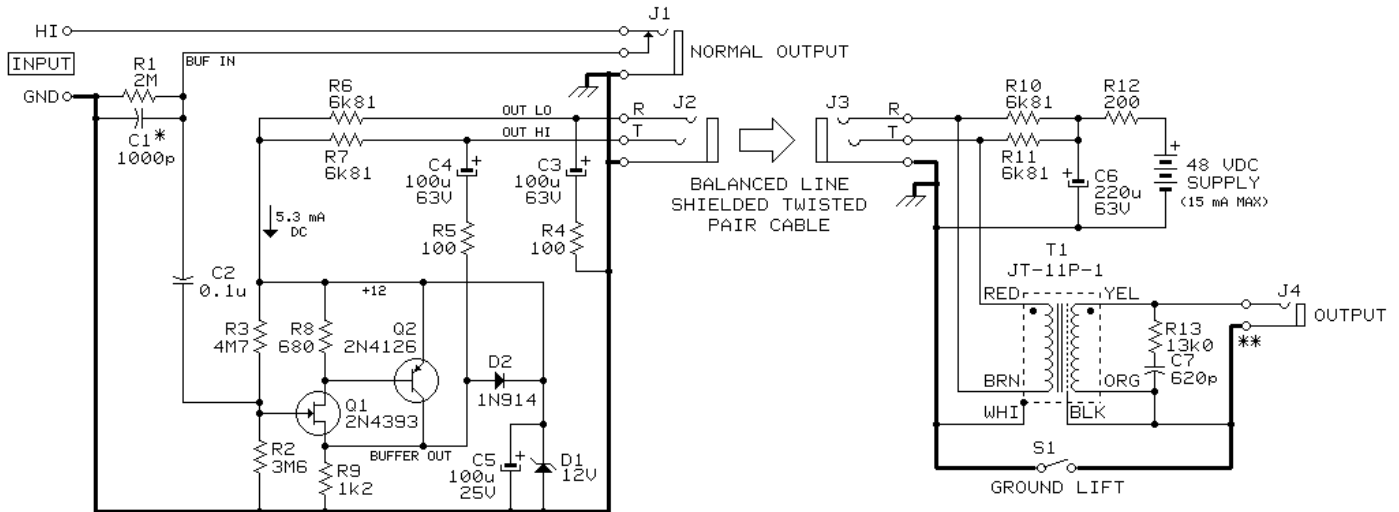


## NOTES:

- \*\* BY GROUNDING PIN 3, THE EXISTING BALANCED INPUT IS USED IN AN UNBALANCED MODE. BALANCING, WITH MUCH IMPROVED CMRR, IS PROVIDED BY THE TRANSFORMER.
- 1. THE DAMPING NETWORK SHOWN IS NECESSARY IF THE IMPEDANCE OF THE UNBALANCED INPUT IS OVER 10 kΩ, WHICH IS TYPICAL. OMIT NETWORK ONLY IF INPUT IMPEDANCE IS EXACTLY 10 kΩ.
- 2. FOR BEST TRANSIENT RESPONSE, KEEP SECONDARY LOAD CAPACITANCE UNDER 100 pF. (ABOUT 2 FEET OF TYPICAL CABLE CONNECTED TO P1)
- 3. PRIMARY (RED/BRN) AND SECONDARY (YEL/ORG) LEADS SHOULD BE TWISTED AS SHOWN AND WIRING SHOWN AS THICK LINE SHOULD BE HEAVY GAUGE AND AS SHORT AND DIRECT AS POSSIBLE.
- 4. A PAIR OF JT-11P-1 TRANSFORMERS ASSEMBLED AS ABOVE IN A STURDY STEEL BOX WITH GOLD PLATED XLR CONNECTORS AND GROUND LIFT SWITCHES IS AVAILABLE FROM JENSEN AS ISO-MAX® MODEL PI-2XX.

<b>jensen</b>	AS003
	09/13/95
7135 HAYVENHURST AVE. VAN NUYS, CALIFORNIA 91406 (818) 374-5857	

# JT-11P-1 + "PHANTOM" BUFFER PROVIDE BALANCED GUITAR OUTPUT



BUFFER INPUT IMPEDANCE = 1 MΩ  
 BUFFER OUTPUT IMPEDANCE = 200 Ω BALANCED  
 BUFFER VOLTAGE GAIN = UNITY (0 dB)  
 MAX UNDISTORTED INPUT/OUTPUT = 3.5 URMS (10 V pk-pk)

INPUT "HI" AND "GND" CONNECT TO OUTPUT OF EXISTING PICKUP AND VOLUME/TONE CONTROLS.

\*C1 SIMULATES THE PICKUP LOADING EFFECT OF A NORMAL 20' GUITAR CABLE. IT MAY BE ALTERED IN VALUE OR OMITTED.

FOR BEST HUM & BUZZ REJECTION IN BALANCED LINE, 1% RESISTOR PAIRS R4-R5, R6-R7, AND R10-R11 MUST BE WELL MATCHED.

\*\* J4 MOUNTING MUST INSULATE IT FROM CHASSIS.

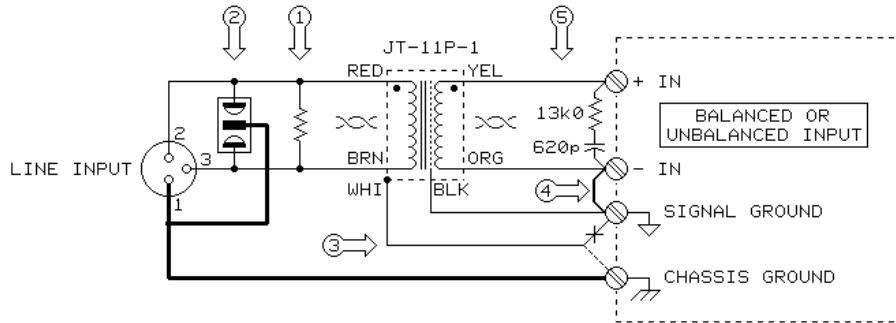
PLUGGING INTO "NORMAL" OUTPUT DISCONNECTS BUFFER - J1 AND J2 OUTPUTS CANNOT BE USED SIMULTANEOUSLY.

BALANCED LINE CONNECTING J2 AND J3 CAN BE VERY LONG.

CABLE CONNECTING J4 TO AMPLIFIER SHOULD BE UNDER 3' LONG TO AVOID HIGH FREQUENCY ROLL-OFF EFFECTS.

<b>jensen</b>	AS004
	11/25/96
7135 HAYVENHURST AVE. VAN NUYS, CALIFORNIA 91406 (818) 374-5857	

# JT-11P-1 RECEIVER FOR VERY LONG LINE APPLICATIONS



## NOTES

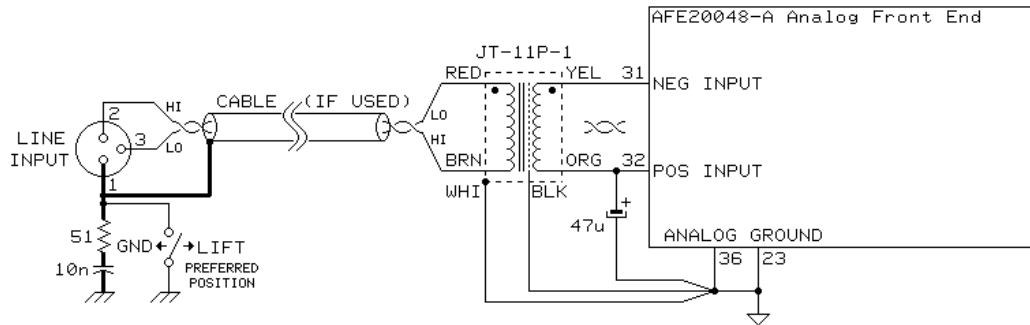
1. WITH AUDIO LINES LONGER THAN ABOUT 500 FEET, TRANSMISSION LINE EFFECTS MAY BEGIN TO APPEAR, REQUIRING SOME TERMINATION TO DAMP THEM. 50 TO 100  $\Omega$  SOURCE, AND 150 TO 500  $\Omega$  TERMINATION IMPEDANCES ARE COMMON. VALUES ARE BEST OPTIMIZED EXPERIMENTALLY FOR BEST SQUARE WAVE RESPONSE.
2. VERY LONG LINES ARE ALSO PRONE TO HIGH VOLTAGE TRANSIENTS INDUCED BY NEARBY LIGHTNING STRIKES. A 250 VOLT GAS DISCHARGE SUPPRESSOR\* IS RECOMMENDED TO CLAMP THEM BECAUSE IT DOESN'T EXHIBIT THE DISTORTION PRODUCING NON-LINEARITIES OF MOVs OR ZENERS. THE CHASSIS OF THE RECEIVING EQUIPMENT MUST BE CONNECTED TO A LOW IMPEDANCE EARTH GROUND FOR THE SUPPRESSOR TO BE EFFECTIVE.
3. IF POSSIBLE, INSULATE THE TRANSFORMER CASE FROM THE CHASSIS WHEN MOUNTING AND CONNECT THE CASE (WHI) TO SIGNAL GROUND. ALTERNATE MOUNTING TO AND/OR CONNECTION TO THE CHASSIS IS ACCEPTABLE.
4. BALANCED INPUTS SHOULD BE "FORCED" TO UNBALANCED OPERATION WITH THE JUMPER SHOWN.
5. THE RC DAMPING NETWORK SHOWN MUST BE USED FOR ALL AMPLIFIER INPUT IMPEDANCES OVER 10 k $\Omega$ .
6. SEPARATELY TWIST PRIMARY AND SECONDARY LEADS AS INDICATED TO REDUCE PICKUP OF MAGNETIC FIELDS. KEEP SECONDARY LEADS SHORT AND ROUTE AWAY FROM PRIMARY LEADS TO MAXIMIZE COMMON-MODE REJECTION.

\*C.P. CLARE PART #PMT3(310)25010 IS TYPICAL OF AVAILABLE PARTS

<b>jensen</b>	AS005
	09/13/95
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## JT-11P-1 INPUT TO ULTRA ANALOG 20 BIT A/D CONVERTER



### NOTES

1. CASE OF TRANSFORMER MUST BE INSULATED FROM CHASSIS OR OTHER GROUNDS FOR BEST NOISE REJECTION.
2. IF USED, ANY CABLE BETWEEN TRANSFORMER AND MODULE MUST BE VERY SHORT (2 FEET RECOMMENDED MAX).
3. POLARITY REVERSAL, IS DONE AT THE TRANSFORMER PRIMARY IN ORDER TO USE THE "NEG INPUT" OF THE MODULE, WHICH LOADS THE TRANSFORMER PERFECTLY WITH 10kΩ. NO RC DAMPING NETWORK IS REQUIRED.
4. INPUT IMPEDANCE AT THE LINE INPUT IS ABOUT 13kΩ OHMS DIFFERENTIAL or "BRIDGING".
5. WE RECOMMEND USING THE ±5V INPUT RANGE, WHICH MAKES DIGITAL FULL SCALE ABOUT +15 dBu AT THE INPUT.

**jensen**

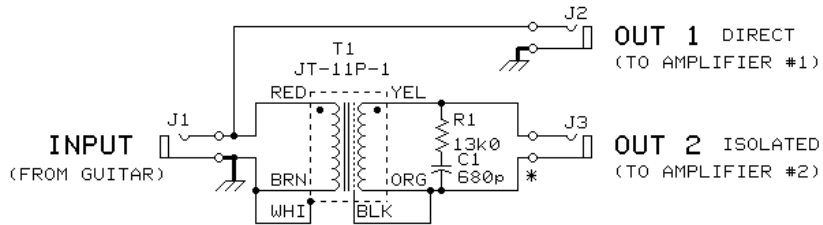
AS006

09/13/95

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JT-11P-1 USED IN 2 WAY PASSIVE GUITAR "SPLITTER"



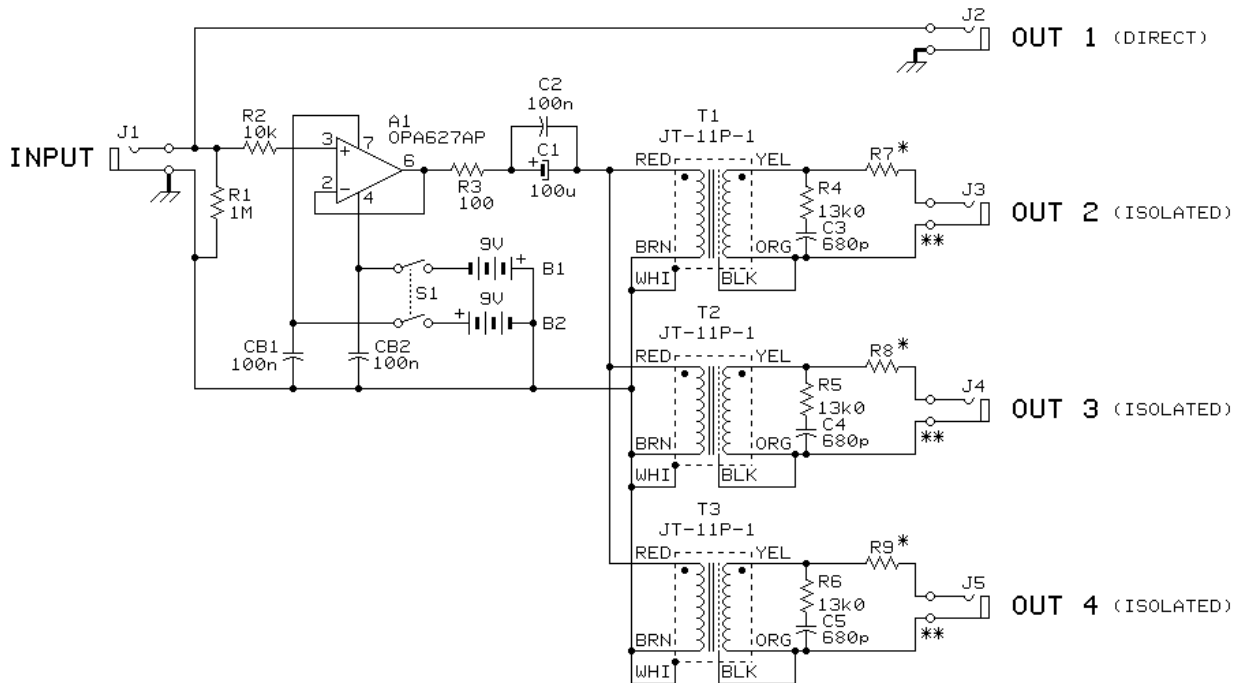
\* J3 MOUNTING MUST INSULATE IT FROM CHASSIS.

ENABLES ONE GUITAR TO FEED TWO AMPLIFIERS AND ISOLATED OUTPUT AVOIDS "GROUND LOOP" PROBLEMS

SINCE THIS DEVICE IS PASSIVE, GUITAR HIGH FREQUENCY RESPONSE WILL BE AFFECTED BY ALL CABLE CAPACITANCES AT J1, J2, AND J3. KEEP ALL CABLES SHORT FOR BEST TREBLE RESPONSE.

<b>jensen</b>	AS013
	01/11/96
7135 HAYVENHURST AVE. VAN NUYS, CALIFORNIA 91406 (818) 374-5857	

# 4 WAY ACTIVE GUITAR "SPLITTER" or DISTRIBUTION AMPLIFIER



A LOWER COST OP-AMP, SUCH AS THE LF356N, MAY BE SUBSTITUTED FOR A1. ITS SLIGHTLY HIGHER NOISE (HISS) WILL BE INSIGNIFICANT UNLESS THE DC RESISTANCE OF THE PICKUP IS UNDER 3 k $\Omega$ ,

\*R7, R8, AND R9 CAN RANGE IN VALUE UP TO 50 k $\Omega$  OR CAN BE 50 k $\Omega$  POTENTIOMETERS. THEY WILL PRODUCE TREBLE ROLL OFF SIMILAR TO THE DIRECT OUTPUT, WITH HIGHER VALUES PRODUCING THE MOST ROLL OFF.

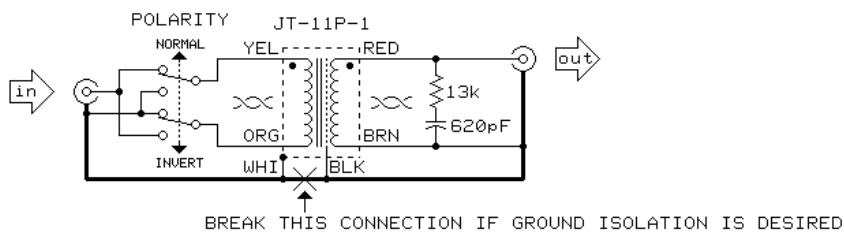
\*\* J3, J4, AND J5 MOUNTING MUST INSULATE THEM FROM THE CHASSIS.

<b>jensen</b>	AS014
	01/11/96
7135 HAYVENHURST AVE. VAN NUYS, CALIFORNIA 91406 (818) 374-5857	



## JT-11P-1 USED AS UNBALANCED POLARITY INVERTER

as described in "A minus B - Another Way of Listening" by Dave Moulton, Home & Studio Recording, December 1993



### NOTES

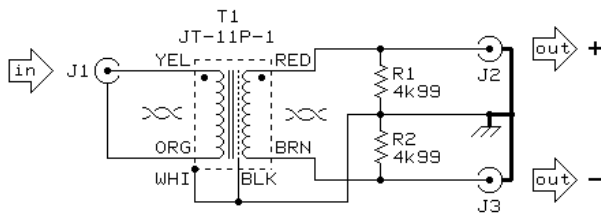
1. SWITCH IS HIGH QUALITY DOUBLE POLE, DOUBLE THROW TYPE - GOLD CONTACTS RECOMMENDED.
2. RESISTOR AND CAPACITOR ARE REQUIRED FOR PROPER TRANSIENT RESPONSE.
3. TIGHTLY TWIST LEADS SHOWN AS  $\times \times$ .
4. USE OF GOLD PLATED CONTACTS IN ALL CONNECTORS IS HIGHLY RECOMMENDED.
5. KEEP OUTPUT CABLE SHORT (UNDER 2 FEET) FOR BEST FIDELITY.
6. OUTPUT LOAD SHOULD HAVE IMPEDANCE OF 15 k $\Omega$  OR MORE.

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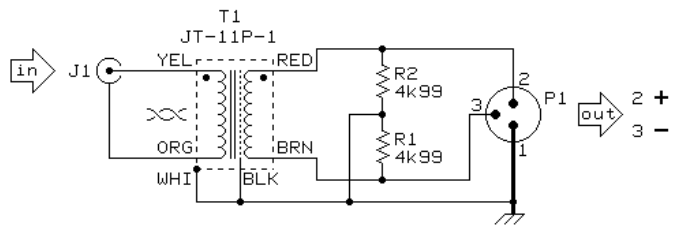
<b>jensen</b>	AS042
	09/20/95
7135 HAYVENHURST AVE. VAN NUYS, CALIFORNIA 91406 (818) 374-5857	

## JT-11P-1 AS "PHASE SPLITTER" WITH SYMMETRICAL OUTPUTS

PROVIDES GROUND ISOLATION AS WELL AS VERY WELL MATCHED SYMMETRICAL (EQUAL AMPLITUDE, OPPOSITE POLARITY) SIGNALS



UNBALANCED IN / OUT VERSION



UNBALANCED IN / BALANCED OUT VERSION

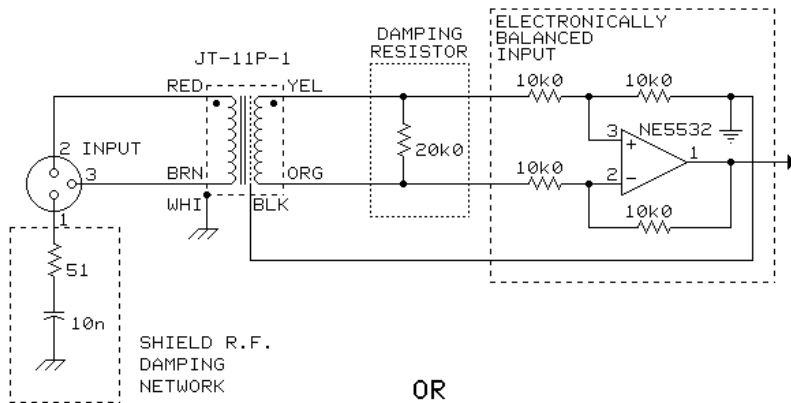
### NOTES

- J1 SHOULD BE INSULATED MOUNT TYPE
- INPUT DRIVING SOURCE SHOULD HAVE LOW OUTPUT IMPEDANCE (UNDER 600Ω PREFERRED)  
INPUT IMPEDANCE AT J1 IS 13 kΩ
- OUTPUT LOADS SHOULD MATCH AND BE > 20 kΩ AND < 200 pF EACH, OR  
> 40 kΩ AND < 100 pF DIFFERENTIALLY  
KEEP OUTPUT CABLE LENGTHS SHORT (UNDER 2 FEET)
- TIGHTLY TWIST LEADS SHOWN AS ∞∞  
KEEP ALL WIRING AS SHORT AS POSSIBLE
- ALL RESISTORS ARE ±1% 1/4w METAL FILM TYPES, ROEDERSTEIN MK2-1 OR EQUIVALENT  
VALUES IN OHMS, 4k99 = 4.99k
- USE OF GOLD PLATED CONTACTS IN ALL CONNECTORS IS HIGHLY RECOMMENDED

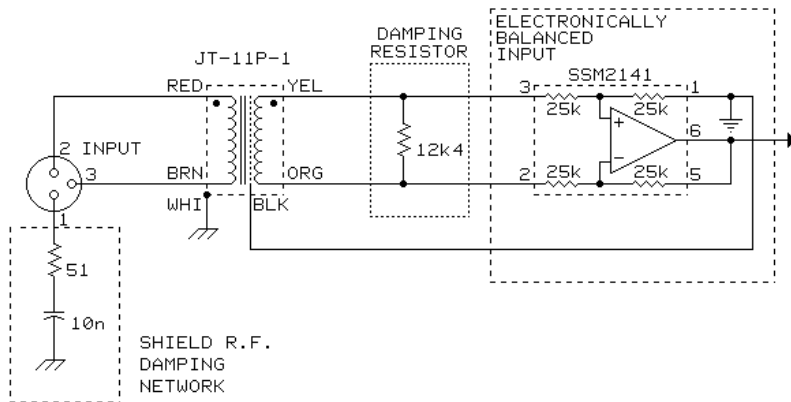
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<b>jensen</b>	AS060
	01/04/95
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# JT-11P-1 INPUT TRANSFORMER IMPROVEMENT FOR ELECTRONICALLY BALANCED INPUT



OR



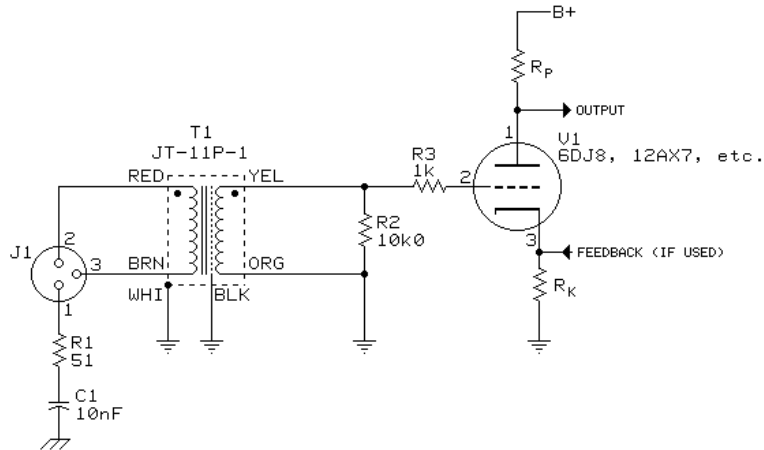
THE 2 EXAMPLES SHOWN TO THE LEFT REPRESENT THE MOST COMMONLY USED VALUES FOR ELECTRONICALLY BALANCED INPUTS. THE DAMPING RESISTOR IS CHOSEN TO PROVIDE A 10k LOAD TO THE SECONDARY OF THE JT-11P-1.

IF YOU ASSUME A 10 Ohm IMBALANCE IN THE DRIVING SOURCE (VERY COMMON!), YOU CAN EXPECT A TYPICAL IMPROVEMENT IN CMRR OF 65dB AT 60Hz AND 20dB AT 3kHz BY ADDING THE JT-11P-1 TRANSFORMER TO THE ELECTRONICALLY BALANCED INPUT.

THE SHIELD R.F. DAMPING NETWORK PROVIDES A HIGH IMPEDANCE AT LOW FREQUENCIES TO PREVENT CURRENTS FROM FLOWING IN THE SHIELD, WHILE STILL PROVIDING DAMPING AT R.F. FREQUENCIES TO PREVENT CABLE SHIELD HIGH Q RESONANCES.

<b>jensen</b>	AS069
	07/10/97
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## JT-11P-1 TUBE LINE INPUT STAGE



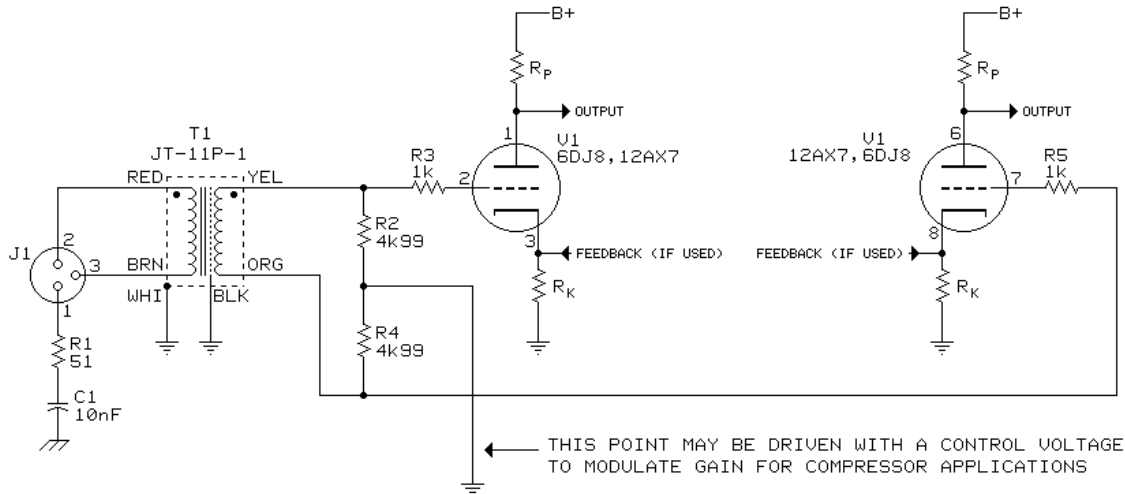
### NOTES

RESISTORS R1, R2 AND R3 ARE 1% 1/4w METAL FILM TYPES, ROEDERSTEIN MK2-1 OR EQUIVALENT  
 RESISTORS R<sub>p</sub> AND R<sub>k</sub> SHOULD BE WIREWOUND OR METAL FOIL TYPES TO REDUCE EXCESS NOISE CONTRIBUTION  
 ALL RESISTORS IN OHMS ( 6k81 = 6.81k, 68r1 = 68.1 )  
 RESISTOR R3 SHOULD BE MOUNTED AS CLOSE AS POSSIBLE TO U1 TO PREVENT POSSIBLE SPURIOUS UHF OSCILLATIONS  
 U1 SOCKET SHOULD BE HIGH QUALITY NON-HYGROSCOPIC TYPE, SUCH AS PORCELAIN, FOR LOWEST NOISE  
 USE OF VERY CLEAN DC POWER FOR PLATE AND HEATER IS HIGHLY RECOMMENDED  
 R1 AND C1 DAMP CABLE SHIELD R.F. PICK-UP, C1 IS CERAMIC DISC TYPE

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<b>jensen</b>	AS087
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## JT-11P-1 BALANCED TUBE LINE INPUT STAGE

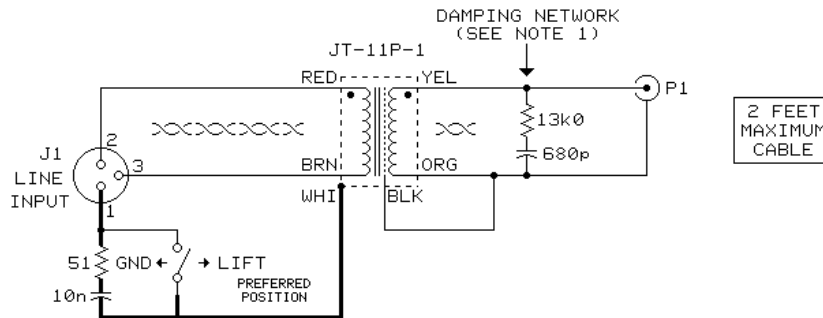


### NOTES

- RESISTORS R1 THROUGH R5 ARE 1% 1/4w METAL FILM TYPES, ROEDERSTEIN MK2-1 OR EQUIVALENT
- RESISTORS  $R_p$  AND  $R_k$  SHOULD BE WIREWOUND OR METAL FOIL TYPES TO REDUCE EXCESS NOISE CONTRIBUTION
- ALL RESISTORS IN OHMS ( 6k81 = 6.81k, 68r1 = 68.1 )
- RESISTORS R3 AND R5 SHOULD BE MOUNTED AS CLOSE AS POSSIBLE TO U1 TO PREVENT POSSIBLE SPURIOUS UHF OSCILLATIONS
- U1 SOCKET SHOULD BE HIGH QUALITY NON-HYGROSCOPIC TYPE, SUCH AS PORCELAIN, FOR LOWEST NOISE
- USE OF VERY CLEAN DC POWER FOR PLATE AND HEATER IS HIGHLY RECOMMENDED
- R1 AND C1 DAMP CABLE SHIELD R.F. PICK-UP, C1 IS CERAMIC DISC TYPE

<b>jensen</b>	AS088
	08/20/98
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## JT-11P-1 BALANCED XLR INPUT TO UNBALANCED RCA OUTPUT

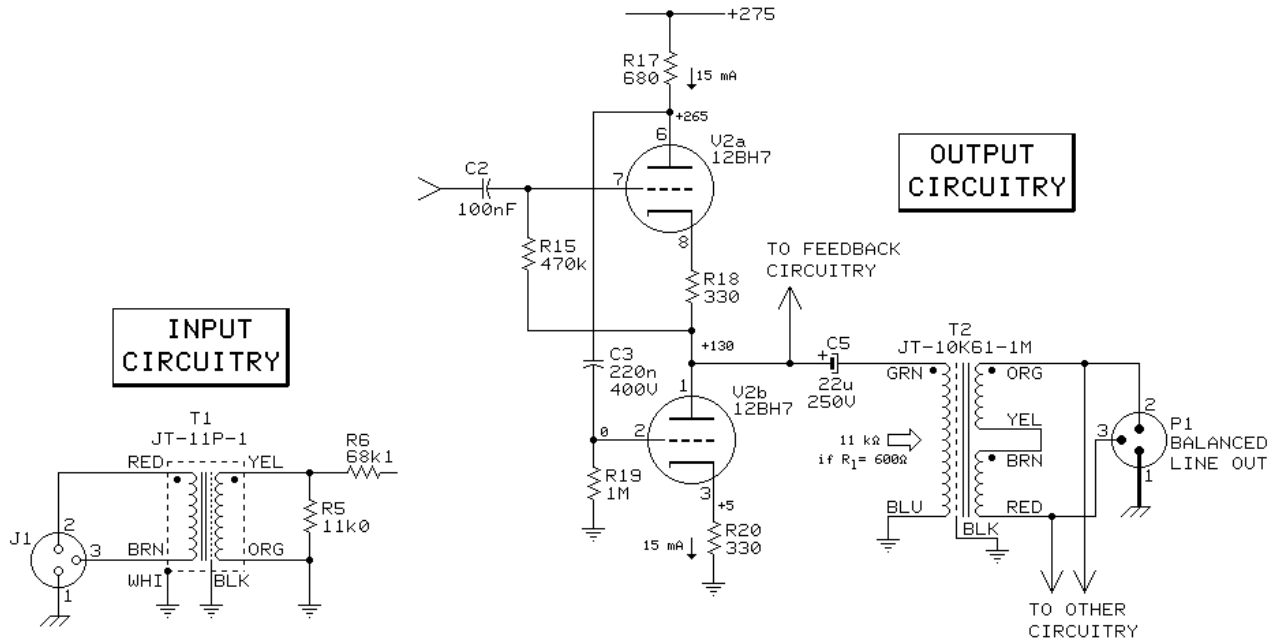


**NOTES:**

1. THE DAMPING NETWORK SHOWN IS NECESSARY IF THE IMPEDANCE OF THE UNBALANCED INPUT IS OVER 10 kΩ, WHICH IS TYPICAL. OMIT NETWORK ONLY IF INPUT IMPEDANCE IS EXACTLY 10 kΩ.
2. FOR BEST TRANSIENT RESPONSE, KEEP SECONDARY LOAD CAPACITANCE UNDER 100 pF. (ABOUT 2 FEET OF TYPICAL CABLE CONNECTED TO P1)
3. PRIMARY (RED/BRN) AND SECONDARY (YEL/ORG) LEADS SHOULD BE TWISTED AS SHOWN AND WIRING SHOWN AS THICK LINE SHOULD BE HEAVY GAUGE AND AS SHORT AND DIRECT AS POSSIBLE.
4. A PAIR OF JT-11P-1 TRANSFORMERS ASSEMBLED AS ABOVE IN A STURDY STEEL BOX WITH GOLD PLATED XLR CONNECTORS AND GROUND LIFT SWITCHES IS AVAILABLE FROM JENSEN AS ISO-MAX® MODEL PI-2XX.

<b>jensen</b>	AS089
	10/29/98
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# JT-11P-1/JT-10K61-1M LA2A CIRCUITRY MODIFICATIONS

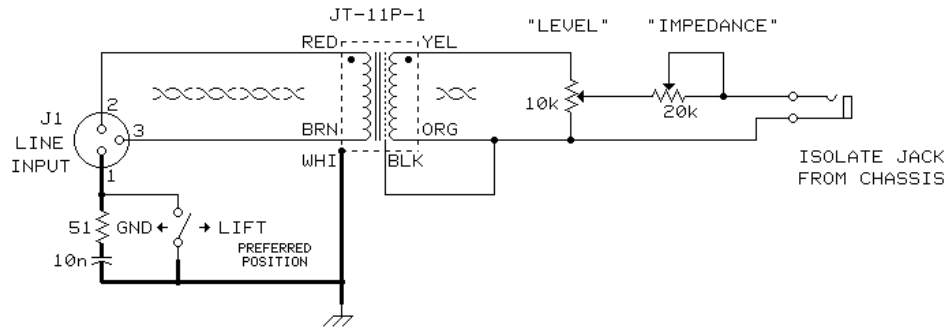


NOTE: PART NUMBERS CORRESPOND TO CIRCUIT AS PUBLISHED IN "AUDIO CYCLOPEDIA"

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<b>jensen</b>	AS091
	02/17/00
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# JT-11P-1 BALANCED LINE LEVEL TO UNBALANCED GUITAR LEVEL CONVERTOR



## NOTES:

1. PRIMARY (RED/BRN) AND SECONDARY (YEL/ORG) LEADS SHOULD BE TWISTED AS SHOWN AND WIRING SHOWN AS THICK LINE SHOULD BE HEAVY GAUGE AND AS SHORT AND DIRECT AS POSSIBLE.
2. LEVEL POTENTIOMETER SHOULD BE AUDIO TAPER TYPE.
3. IMPEDANCE POTENTIOMETER CAN BE EITHER AUDIO OR LINEAR TAPER.

**jensen**

AS092

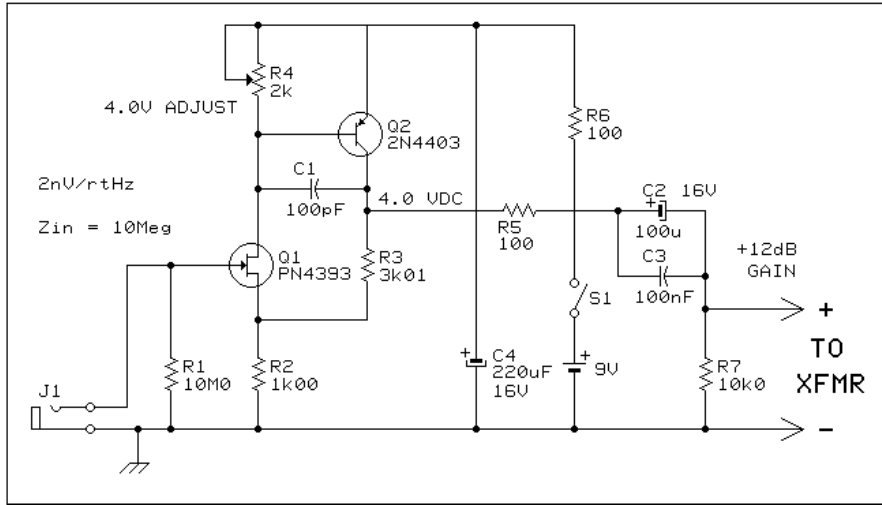
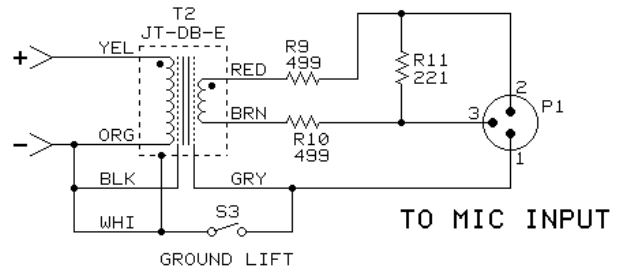
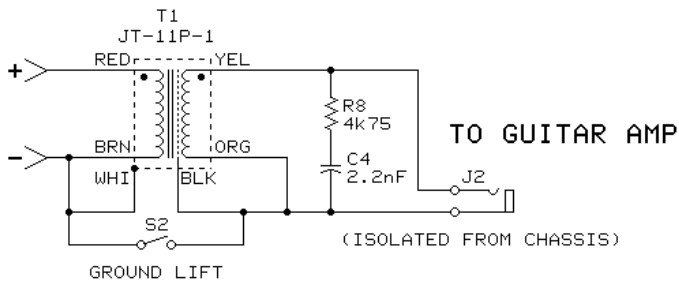
01/30/02

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## HIGH IMPEDANCE PIEZO AMPLIFIER



**HIGH IMPEDANCE BUFFER WITH 12dB GAIN**

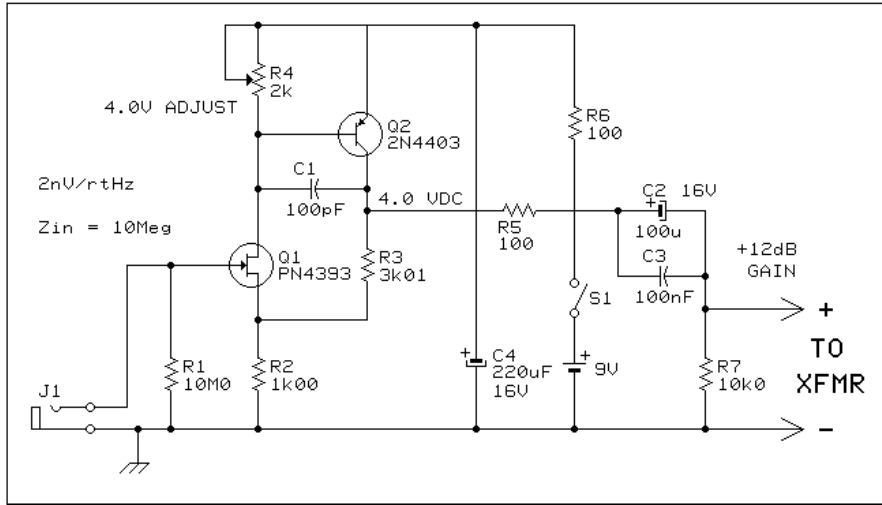
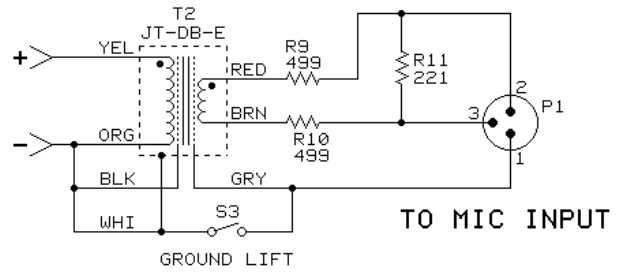
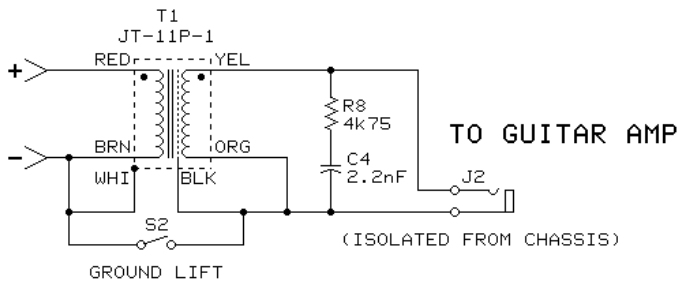
**NOTES:**

- 1) EITHER OR BOTH OUTPUT OPTIONS MAY BE USED.
- 2) IF ISOLATION IS NOT REQUIRED, BUFFER MAY BE CONNECTED DIRECTLY TO 1/4" OUTPUT JACK.
- 3) C1, C3 AND C4 ARE 50V POLYPROPYLENE.

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<b>jensen</b>	<b>AS098</b>
04/30/03	
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## HIGH IMPEDANCE PIEZO AMPLIFIER



**HIGH IMPEDANCE BUFFER WITH 12dB GAIN**

**NOTES:**

- 1) EITHER OR BOTH OUTPUT OPTIONS MAY BE USED.
- 2) IF ISOLATION IS NOT REQUIRED, BUFFER MAY BE CONNECTED DIRECTLY TO 1/4" OUTPUT JACK.
- 3) C1, C3 AND C4 ARE 50V POLYPROPYLENE.

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04/30/03	
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